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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/745,621	12/21/2000	Kai Eck	PHD 99,198	1118

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EXAMINER

AZARIAN, SEYED H

ART UNIT	PAPER NUMBER
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2625

DATE MAILED: 10/07/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/745,621

Applicant(s)

ECK ET AL.

Examiner

Seyed Azarian

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 17 June 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-7,10,12,13 and 15-18 is/are rejected.
- 7) ☒ Claim(s) 8,9,11 and 14 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 21 December 2000 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

RESPONSE TO AMENDMENT

1. Applicant's arguments, filed, 6/17/2004, see page 7 through 11, of remarks with respect to the rejection of claims 1-18 have been fully considered but they are not persuasive in view of the new grounds of rejection necessitated by applicant's amendment.
2. Applicant's argues in essence regarding claim 1, that Diepstraten does not teach or suggest a device for forming an image from a plurality of sub-images, including a single-surface detector with sensor elements for generating image data ”.

Contrary to the applicant's assertion, Diepstraten discloses, a plurality of image sensors for picking up sub-images and for supplying electronic sub-image signals. A combination unit forms an electronic image for a composite image from sub-image signals (see abstract), also individual image sensor supplies an electronic sub-image signals which contains signal levels representing brightness values in the sub-images, which electronic sub-image signals are combined in a combination unit so as to form an electronic image signal whose signal levels represent brightness values, also correction unit correct the electronic image signal for the composite image (Fig. 1, column 6, lines 16-47).

In response to Applicant's argument regarding claim 1, that Diepstraten “is art under 102(e), 102(f) or 102(g), and therefore cannot be used against claims in view of Bamberger to establish an obviousness rejection under 103(a)”.

The Examiner disagrees and indicates, Applicant has provided evidence in this file showing that the invention was owned by, or subject to an obligation of assignment to, the same entity as U.S. Philips Corporation at the time this invention was made. Accordingly, Diepstraten is disqualified as prior art through 35 U.S.C. 102(e), (f) or (g) in any rejection under 35 U.S.C. 103(a) in this application. **However, this applied art additionally qualifies as prior art under another subsection of 35 U.S.C. 102 and accordingly is not disqualified as prior art under 35 U.S.C. 103(a).**

Applicant may overcome the applied art either by a showing under 37 CFR 1.132 that the invention disclosed therein was derived from the inventor of this application, and is therefore, not the invention "by another", or by antedating the applied art under 37 CFR 1.131.

In response to applicant's argument that obviousness has not been established, the test for obviousness is not whether the features of a secondary reference may be bodily incorporated into the structure of the primary reference; nor is it that the claimed invention must be expressly suggested in any one or all of the references. Rather, the test is what the combined teachings of the references would have suggested to those of ordinary skill in the art. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981).

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Drawings

3. The drawings are objected to because the blank boxes in figures 11-19, lack description. Because it is difficult to ascertain what blank boxes are without having to dig through the specification, it is respectfully requested that these figures merely be provided with some simple description so that attorneys, examiners, and the public in general will be provided with a quicker way to search and a clearer patent disclosure. This benefits everyone.

Applicant is required to submit a proposed drawing correction in reply to this Office action. Failure to timely submit the proposed drawing correction will result in the abandonment of the application. The objection to the drawing will not be held in abeyance.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35

U.S.C. 102 that form the basis for the rejections under this section made in this

Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 1-5, are rejected under 35 U.S.C. 102(b) as being anticipated by Diepstraten (U.S. patent 5,602,896).

Regarding claim 1, Diepstraten discloses a device for forming an image from a plurality of sub images, the device comprising (Fig. 1, column 6, lines 16-47, individual image sensor supplies an electronic sub-image signals which contains signal levels representing brightness values in the sub-images, which electronic sub-image signals are combined in a combination unit so as to form an electronic image signal whose signal levels represent brightness values, also correction unit correct the electronic image signal for the composite image);

a single-surface detector, which includes a plurality of sensor elements for generating image data, said sensor elements arranged in groups for forming a plurality of sub-area (T1 to Tn) of the image, where each sub-image corresponds to each sub-area (column 5, lines 45-57, the first and second sub-images are used);

read-out units (V1 to Vn) associated with the sub-areas (T1 to T2) of the image (Fig. 1, column 6, lines 16-34, refer to optical image and image sensors 2 and 3 which supplies an electronic sub-image signal representing brightness value);

an analysis unit arranged to evaluate image data form adjoining image areas (S63 and S66) of neighboring sub-areas (T1 and T2) and to generate Correction data, and a correction unit arranged to correct incorrect linage data by means of correction data (column 6, lines 34-47, evaluate sub-image brightness by the sensors and correction unit for correcting image signal).

Regarding claim 2, Diepstraten discloses the device, as claimed in claim 1, wherein sensor elements arranged in rows and columns column forming a

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matrix (column 4, lines 9-13 the column and line gain factors are derived from brightness values of a first and second reference image picked up by the first image sensor and the second image sensor, respectively).

Regarding claim 3, Diepstraten discloses the device as claimed in claim 2, wherein the rows or columns, or pails thereof, constitute an image area, that a plurality of image areas constitute a sub-area, and wherein amplifiers are included to read out image data from the sub-areas (column 8, lines 23-35, whereto the amplifier is adjusted by correction unit).

Regarding claim 4, Diepstraten discloses the device as claimed in claim 1, further comprising a memory for storing the, correction data (column 5, lines 24-29, memory for correction data).

Regarding claim 5, Diepstraten discloses the device as claimed in claim 1, wherein the image data is applied to the analysis unit at a reduce rate (column 8, lines 8-16, image in comparison and adjusted amplifier to reducing value).

Claim Rejections - 35 USC § 103

6. Following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 6 and 7, are rejected under 35 U.S.C. 103(a) as being unpatentable over Diepstraten (U.S. patent 5,602,896) in view of Bamberger et al (U.S. patent 5,946,407).

Regarding claim 6, Diepstraten is silent about "cumulative histograms". On the other hand Bamberger teaches the cumulative histogram are logarithmic the look-up table which transforms the gray level values of digital image in the region of interest (column 10, lines 39-50).

Therefore it would have been obvious to one having ordinary skill in the art at the time of the invention was made, to modify Diepstraten sub-image invention according to the teaching of Bamberger because it provides plurality of image enhancement features including gray scale stretching, contrast enhancement based on histogram equalization which improve visualization of suspected lesions and cost and risks of more tests, which can be implemented in an image device such as X-ray device.

Regarding claim 7, Diepstraten discloses the device, as claimed in claim 6, wherein the histogram generator is arranged to receive the image data and to generate histograms over a selectable period of time (see claim 6, also column 3, lines 65 through column 4, line 8, correction of brightness in short period of time).

8. Claims 10, 12-13 and 15-18, are rejected under 35 U.S.C. 103(a) as being unpatentable over Diepstraten (U.S. patent 5,602,896) in view of Yamada et al (U.S. patent 6,163,029).

Regarding claim 10, Diepstraten fails to disclose, "flat dynamic X-ray detector, wherein a read-out unit is associated with sub-area". On the other hand Yamada teaches X-ray solid flat panel detector is set corresponding to the X-ray irradiation condition, so that the dynamic range can be utilized effectively (column 11, lines 40-47).

Therefore it would have been obvious to one having ordinary skill in the art at the time of the invention was made, to modify Diepstraten sub-image invention according to the teaching of Yamada because it provides improved image correction, that includes a sensor matrix whose photodiodes are preceded by a scintillator for converting the X-ray into light for uniform illumination to increase and achieve a better result and enhance the image quality.

Regarding claim 12, Diepstraten discloses the method of as claimed in claim 10, further including using a directly adjacent pixel of the neighboring sub-area as the estimated value of the image value (see claim 10, also column 8, line 58 through column 9, line 3, refer to adjusts the amplifier and different setting).

Regarding claim 17, Diepstraten discloses an x-ray examination apparatus, which includes an X-ray source for emitting X-rays and for forming an X-ray image, a flat dynamic X-ray detector for forming an optical image from the X-ray image, which detector includes sensor elements arranged in rows and columns and at least two amplifiers (V1 to Vn) for reading out detected image data, at least one, amplifier being associated with each of a plurality of sub-area (T1 to Tn) in order to read out detected image data comprising (column 6, lines

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49-65, the energy and intensity of the X-ray source can be adjusted on the basis of the setting).

Regarding claims 13 and 16, it recites similar limitation as claims 6, 10 and 12, are similarly analyzed.

Regarding claims 15 and 18, it recites similar limitation as claims 6 and 17 are similarly analyzed.

Allowable Subject Matter

9. Claims 8, 9, 11 and 14 and are objected as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitation of the base claim and any intervening claims.

Conclusion

10. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL.**

See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be

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calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Contact Information

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Seyed Azarian whose telephone number is (703) 306-5907. The examiner can normally be reached on Monday through Thursday from 6:00 a.m. to 7:30 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bhavesh Mehta, can be reached at (703) 308-5246. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application information Retrieval (PAIR) system. Status information for published application may be obtained from either Private PAIR or Public PAIR.

Status information about the PAIR system, see [http:// pair-direct.uspto.gov](http://pair-direct.uspto.gov).

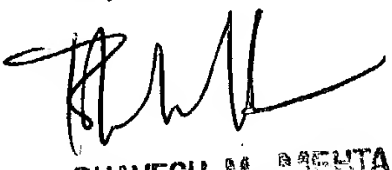
Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Seyed Azarian

Patent Examiner

Group Art Unit 2625

October 2, 2004


BHAVESH M. MEHTA
SUPERVISORY PATENT EXAMINER
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